What is claimed is

1   1. A data reproduction apparatus that reproduces data

2   included in transport streams, comprising:

3   a storage medium storing a first transport stream that

4   includes location information at a first location thereof,

5   the location information identifying a second location that

6   is on a time axis and that differs from the first location,

7   the second location being included in the first transport

8   stream or in a second transport stream; and

9   reproduction means for

10   (a) reproducing video data and/or audio data included

11   in a reference target in the first transport stream, while

12   shifting the reference target along a time axis of the first

13   transport stream, and

14   (b) switching the reference target to the second location

15   identified by the location information, when the reference

16   target in the first transport stream includes the location

17   information.

1   2. The data reproduction apparatus of Claim 1,

2   wherein the storage medium stores the second transport

3   stream that includes the second location,

4   the location information further includes transport

5   stream information that identifies the second transport stream

6   that includes the second location, and

7   the reproduction means switches the reference target

8   to the second location in the second transport stream

9   identified by the transport stream information.

1   3. The data reproduction apparatus of Claim 2,

2   wherein each of the first and second transport streams

3   includes data for a plurality of programs with being

4   multiplexed,

5   the location information further includes program ID

6   information that identifies one of the plurality of programs,

7   and

8   the reproduction means sets, as the reference target,

9   video data and/or audio data that belongs to the program

10   identified by the program ID information and that is present

11   at and following the second location, after switching the

12   reference target.

1   4. The data reproduction apparatus of Claim 3,

2   wherein each of the first and second transport streams

3   is composed of a plurality of packets and includes a program

4   map table for identifying data that constitutes each program

5   included therein, and a program association table for

6   identifying a packet that carries the program map table, and

7   the location information is included in the program map

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8   table.

1   5. The data reproduction apparatus of Claim 4,

2   wherein the program map table that includes the location

3   information identifies data for the program identified by

4   the program ID information.

1   6. The data reproduction apparatus of Claim 5, further

2   comprising

3   location information insertion means for

4   (a) extracting a program map table for identifying the

5   program identified by the program ID information from the

6   second transport stream,

7   (b) adding the location information to the extracted

8   program map table, to generate an insertion program map table,

9   and

10   (c) inserting the generated insertion program map table

11 into a transport stream to generate the first transport stream,

12   wherein the program map table including the location

13 information included in the first transport stream is the

14 insertion program map table that has been inserted by the

15 location information insertion means.

1   7. The data reproduction apparatus of Claim 6,

2   wherein when inserting the insertion program map table

3   including the location information, the location information

4   insertion means

5   (a) deletes a program map table of a program to be referred

6   to before switching the reference target,

7   (b) changes a value of a packet identifier of the

8   insertion program map table to a value of a packet identifier

9   of the deleted program map table, and

10   (c) changes a program number shown in the insertion

11   program map table to a program number shown in the deleted

12   program map table.

1   8. The data reproduction apparatus of Claim 6,

2   wherein the insertion program map tale includes a program

3   number of the program identified by the program ID information

4   and a packet identifier for identifying a program map table

5   corresponding to the program identified by the program ID

6   information, and

7   the location information insertion means further adds

8   the program number and the packet identifier to a program

9   association table present in a vicinity preceding a location

10   at which the insertion program map table has been inserted.

1   9. The data reproduction apparatus of Claim 8,

2   wherein the location information insertion means,

3   (a) before adding the program number and the packet

4   identifier to the program association table,

5   replaces the program number with a unique number, if

6   the program number is already present in the program

7   association table, and

8   replaces the value of the packet identifier with a unique

9   value, if the value of the packet identifier is already used

10   in the transport stream into which the insertion program map

11   table is yet to be inserted, and

12   (b) before inserting the insertion program map table,

13   replaces the program number included in the insertion

14   program map table with the unique number, if the program number

15   added to the program association table has been replaced with

16   the unique number, and

17   replaces the value of the packet identifier included

18   in the insertion program map table with the unique value,

19   if the value of the packet identifier added to the program

20   association table has been replaced with the unique value.

1   10. The data reproduction apparatus of Claim 3,

2   wherein each of the first and second transport streams

3   is composed of a plurality of packets and includes a program

4   map table for identifying data that constitutes each program

5   included therein, and a program association table for

6   identifying a packet that carries the program map table, and

7   the location information is included in the program

8   association table.

1   11. The data reproduction apparatus of Claim 2,

2   wherein the transport stream information is a name of

3   a file that stores the second transport stream in the storage

4   medium.

1   12. The data reproduction apparatus of Claim 3,

2   wherein each of the first and second transport streams

3   includes a packet that carries a program map table for

4   identifying data that constitutes each program included

5   therein, and a program association table for identifying the

6   packet that carries the program map table, and

7   the program ID information is a program number shown

8   in the program association table and in the program map table.

1   13. The data reproduction apparatus of Claim 1, further

2   comprising

3   location information insertion means for inserting the

4   location information into a transport stream to generate the

5   first transport stream,

6   wherein the location information included in the first

7   transport stream has been inserted by the location information

8   insertion means.

1   14. The data reproduction apparatus of Claim 13, further

2 comprising

3   insertion location obtaining means for obtaining the

4 first location and notifying the location information

5 insertion means of the obtained first location.

1   15. The data reproduction apparatus of Claim 13, further

2 comprising:

3   display means for displaying on a screen a plurality

4 of locations as candidates for the first location; and

5   reception means for receiving a specification of one

6 of the plurality of locations,

7   wherein the location information insertion means

8 inserts the location information into the transport stream

9 at the one of the locations specified as the first location.

1   16. The data reproduction apparatus of Claim 15,

2   wherein the location information further includes mode

3 information indicating one of a manual mode and an automatic

4 mode, the manual mode for switching the reproduction target

5 by a user judgment, the automatic mode for switching the

6 reproduction target without the user judgment, and

7   the reproduction means switches the reproduction target

8 based on the mode information.

1   17. The data reproduction apparatus of Claim 16,

2   wherein the reception means further receives a

3   specification of one of the manual mode and the automatic

4   mode, and

5   the location information insertion means inserts the

6   location information provided with the mode information

7   indicating the specified mode.

1   18. The data reproduction apparatus of Claim 17,

2   wherein the reception means further receives, from the

3   user, a display instruction to display a specification state

4   of the mode, and

5   the display means displays information associating the

6   location information with the mode when receiving the display

7   instruction.

1   19. The data reproduction apparatus of Claim 13, further

2   comprising:

3   reception means for receiving an instruction from a user;

4   and

5   restoration means for obtaining, when receiving a

6   restoration instruction to restore the transport stream into

7   which the location information is yet to be inserted, the

8   location information inserted by the location information

9   insertion means from the first transport stream, and restoring

10   the transport stream into which the location information is

11   yet to be inserted.

1   20. The data reproduction apparatus of Claim 1, further

2   comprising

3   reception means for receiving an instruction from a user,

4   wherein the reproduction means switches the

5   reproduction target only when an instruction to switch the

6   reproduction target from the user is received by the reception

7   means.

1   21. The data reproduction apparatus of Claim 20, further

2   comprising

3   display means for displaying information for having the

4   user input an instruction indicating whether to switch the

5   reproduction target or not, when the reference target includes

6   the location information.

1   22. The data reproduction apparatus of Claim 21, further

2   comprising

3   location information insertion means for inserting the

4   location information into a transport stream to generate the

5   first transport stream,

6   wherein the location information included in the first

7   transport stream has been inserted by the location information

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8   insertion means.

1   23. The data reproduction apparatus of Claim 1, further

2   comprising:

3   second location obtaining means for obtaining the second

4   location on the time axis; and

5   location information generation means for generating

6   the location information based on the second location obtained

7   by the second location obtaining means,

8   wherein the location information included in the first

9   transport   stream   has   been   generated   by   the   location

10   information generation means.

1   24. The data reproduction apparatus of Claim 1,

2   wherein each of the first and second transport streams

3   is composed of a plurality of packets, and

4   the location information is a number of packets present

5   between a first packet and a packet at the second location

6   inclusive, in the transport stream.

1   25.   A data reproduction apparatus that reproduces data

2   included in data streams, comprising:

3   a storage medium storing a first data stream that includes

4   location information at a first location thereof, the location

5   information identifying a second location that is on a time

6   axis and that differs from the first location, the second

7   location being included in the first data stream or in a second

8   data stream; and

9   reproduction means for

10   (a) reproducing video data and/or audio data included

11   in a reference target in the first data stream, while shifting

12   the reference target along a time axis of the first data stream,

13   and

14   (c) switching the reference target to the second location

15   identified by the location information, when the reference

16   target in the first data stream includes the location

17   information.

1   26. A data reproduction method for use in a data

2   reproduction apparatus that reproduces data included in

3   transport streams and that includes a storage medium storing

4   a first transport stream that includes location information

5   at a first location thereof, the location information

6   identifying a second location that is on a time axis and that

7   differs from the first location, the second location being

8   included in the first transport stream or in a second transport

9   stream, the data reproduction method including

10   a reproduction step for

11   (a) reproducing video data and/or audio data included

12   in a reference target in the first transport stream, while

13   shifting the reference target along a time axis of the first

14   transport stream, and

15   (b) switching the reference target to the second location

16   identified by the location information, when the reference

17   target in the first transport stream includes the location

18   information.

1   27. A computer-readable recording medium on which a

2   program for making a data reproduction apparatus reproduce

3   data is recorded, the data reproduction apparatus reproducing

4   data included in transport streams and including a storage

5   medium storing a first transport stream that includes location

6   information at a first location thereof, the location

7   information identifying a second location that is on a time

8   axis and that differs from the first location, the second

9   location being included in the first transport stream or in

10   a second transport stream, the program including

11   a reproduction step for

12   (a) reproducing video data and/or audio data included

13   in a reference target in the first transport stream, while

14   shifting the reference target along a time axis of the first

15   transport stream, and

16   (b) switching the reference target to the second location

17   identified by the location information, when the reference

18   target in the first transport stream includes the location

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19 information.

1   28. A data editing apparatus that edits transport

2   streams, comprising:

3   a storage medium; and

4   editing means for

5   (a) editing a transport stream by inserting location

6   information into the transport stream at a first location

7   thereof, the location information identifying a second

8   location that is on a time axis and that differs from the

9   first location, the second location being included in the

10 transport stream into which the location information has been

11 inserted, or in a different transport stream, and

12   (b) storing the edited transport stream into the storage

13 medium.